

# Solid Waste and Recycling Options Analysis

City of Racine Department of Public Works



In partnership with **Foth**



# Objectives and Outline

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Kestrel Hawk Landfill due to close in early 2023. Alternate solid waste management needed by January 1, 2023.

Include a review of baseline solid waste, recycling, and Pearl Street operations in analysis.

Reduce impact on residents.

- ◆ Baseline operations
- ◆ Options analysis
- ◆ Decision criteria
- ◆ Results
- ◆ Implementation

# Baseline Operations

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- ◆ Solid waste (MSW) and recycling is collected at 26,764 parcels throughout the City.
  - Primarily single to four-family dwelling units
  - Including alleys and special pickups (door to door)
  - As well as various city buildings and businesses
- ◆ 28,000 tons MSW/year hauled to Kestrel Hawk Landfill in Racine, WI
  - +1,000 tons of household bulky items
- ◆ 5,000 tons recycling/year hauled to Johns Disposal MRF in Norway, WI

# Pearl Street

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- ◆ Yard waste and (3) bulky items accepted once per weekly, free of charge to City residents
- ◆ Electronics, appliances, tires, and construction and demolition waste accepted for a fee
- ◆ Operates 5 days/week with 2 full-time employees
  - Tuesday – Saturday
  - 10AM – 5:45PM
  - closed on City recognized holidays

# Options Analysis

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## ◆ **Option 1 - Direct haul to another private landfill (Metro, operated by WM, Franklin)**

- Recycling direct haul to Johns Disposal MRF in Norway, WI

➤ Pearl Street operations - no change

## ◆ **Option 2 – City constructed Transfer Station (TS)**

- Option 2.1 - City-operated TS
  - Recycling managed through TS
- Option 2.2 - contract-operated transfer station,
  - Recycling direct haul to Johns Disposal MRF in Norway, WI

➤ Pearl Street operations - moved to TS

➤ Pearl Street operations - contracted and managed at TS

## ◆ **Option 3 - Privatization of services**

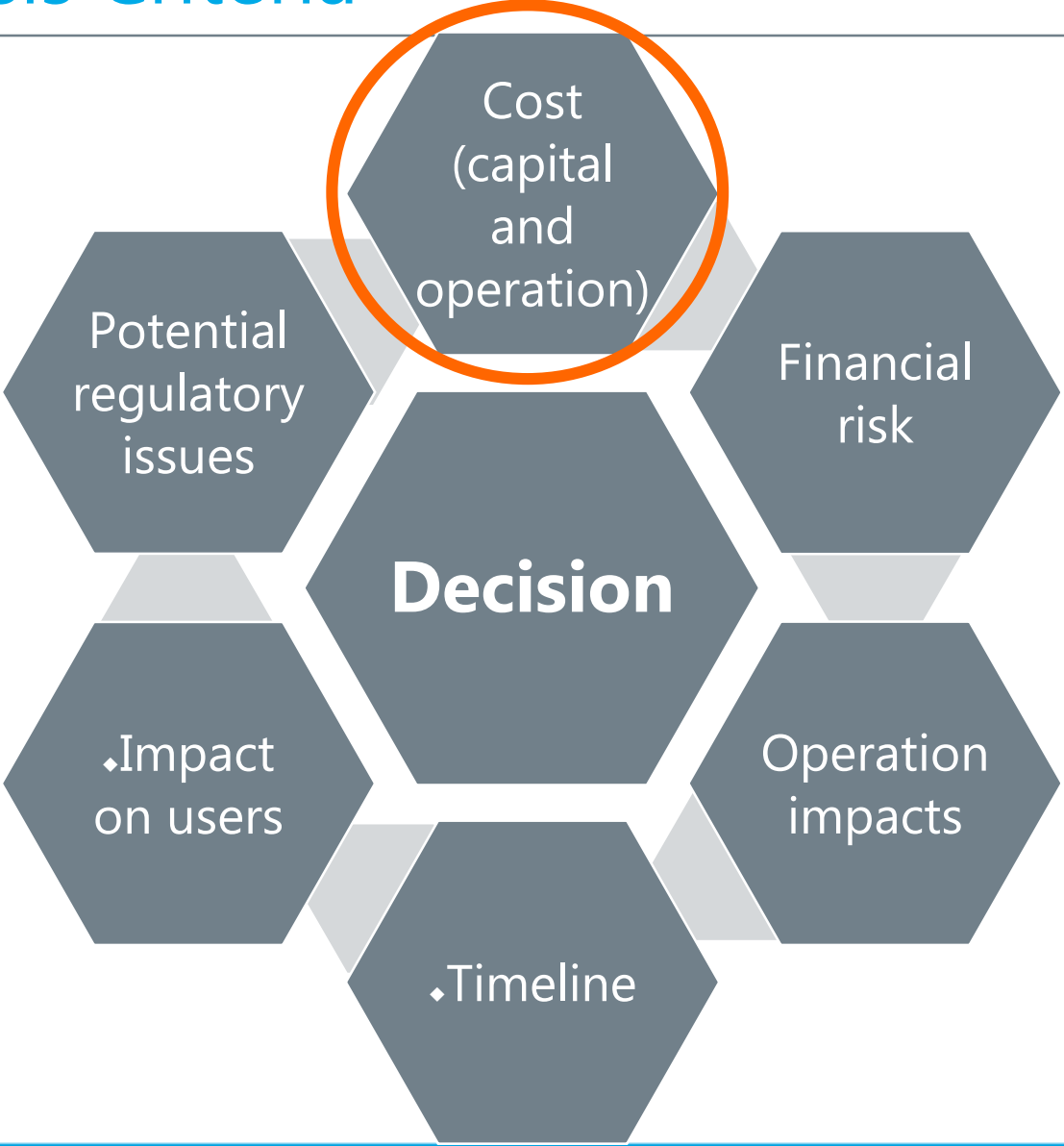
- Recycling hauled to area MRF

➤ Pearl Street operations - contracted and managed at current facility

# Options Analysis Criteria (weighted)



# Options Analysis Criteria



# Cost Analysis – Solid Waste Bottom Line

	Current Solid Waste Operations	Option #1:	Option 2: Construct Transfer Station		Option #3:
		Direct Haul to LF	2.1 City Operated	2.2 Contract Operated	Privatize
<b>Operating Expenses</b>					
Total expenses	\$ 3,229,260	\$ 4,010,177	\$ 3,334,500	\$ 4,763,800	\$ 4,226,832
Expenses per parcel	\$ 121	\$ 150	\$ 125	\$ 178	\$ 158
<b>Revenue</b>					
Total revenue	\$ (1,081,350)	\$ (871,150)	\$ (871,150)	\$ (871,150)	\$ (160,290)
Revenue per parcel	\$ (40)	\$ (33)	\$ (33)	\$ (33)	\$ (6)
<b>Capital - Depreciation</b>					
Total Capital - Year 1	\$ -	\$ -	\$ 173,681	\$ 129,690	\$ -
Capital per parcel	\$ -	\$ -	\$ 6	\$ 5	\$ -
<b>Net cost</b>	<b>\$ 2,147,910</b>	<b>\$ 3,139,027</b>	<b>\$ 2,637,031</b>	<b>\$ 4,022,340</b>	<b>\$ 4,066,542</b>
<b>Net cost per parcel</b>	<b>\$ 80</b>	<b>\$ 117</b>	<b>\$ 99</b>	<b>\$ 150</b>	<b>\$ 152</b>

Notes:

LF = landfill

Prepared by: ASL

Checked by: SMB2



# Cost Analysis – Solid Waste Bottom Line

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Notes:

LF = landfill

Prepared by: RAL

Checked by: SMB2

# Cost Analysis – Recycling

	Current Recycling Operations	Option #1:	Option 2: Construct Transfer Station		Option #3:
		Direct Haul to LF	2.1 City Operated	2.2 Contract Operated	Privatize
<b>Operating Expenses</b>					
Total expenses	\$ 1,916,380	\$ 1,916,380	\$ 1,584,816	\$ 1,664,380	\$ 981,384
Expenses per parcel	\$ 72	\$ 72	\$ 59	\$ 62	\$ 37
<b>Revenue</b>					
Total revenue	\$ (1,932,750)	\$ (1,932,750)	\$ (1,932,750)	\$ (1,932,750)	\$ (1,932,750)
Revenue per parcel	\$ (72)	\$ (72)	\$ (72)	\$ (72)	\$ (72)
<b>Capital - Depreciation</b>					
Total Capital	\$ -	\$ -	\$ 30,650	\$ 22,887	\$ -
Capital per parcel	\$ -	\$ -	\$ 1	\$ 1	\$ -
Net cost	\$ (16,370)	\$ (16,370)	\$ (317,285)	\$ (245,483)	\$ (951,366)
Net cost per parcel	\$ (1)	\$ (1)	\$ (12)	\$ (9)	\$ (36)

# Cost Analysis – Recycling Bottom Line

	Current Recycling Operations	Option #1:	Option 2: Construct Transfer Station		Option #3:
		Direct Haul to LF	2.1 City Operated	2.2 Contract Operated	Privatize
<b>Operating Expenses</b>					
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Capital per parcel	\$ -	\$ -	\$ 1	\$ 1	\$ -
Net cost	\$ (16,370)	\$ (16,370)	\$ (317,285)	\$ (245,483)	\$ (951,366)
<b>Net cost per parcel</b>	<b>\$ (1)</b>	<b>\$ (1)</b>	<b>\$ (12)</b>	<b>\$ (9)</b>	<b>\$ (36)</b>

# Cost Analysis – Bottom Line Solid Waste + Recycling

	Current Solid Waste + Recycling Operations	Option #1:	Option 2: Construct Transfer Station		Option #3:
		Direct Haul to LF	2.1 City Operated	2.2 Contract Operated	Privatize
Net cost	\$ 2,131,540	\$ 2,783,649	\$ 2,319,746	\$ 3,776,857	\$ 3,115,176
Net cost per parcel	\$ 80	\$ 104	\$ 87	\$ 141	\$ 116

- ◆ Option 2.1 is the most overall cost-effective for combined materials management, even with the privatized ~\$37 rate per household for operating expenses for recycling
- ◆ Option 2.1 MSW expenses are only \$100K higher than Baseline costs, including the amortized annual cost of ~\$200K for the transfer station
- ◆ This also assumes equal recycling revenues for all options
- ◆ If Option #3 recycle revenue matches expenses, Net Cost is \$152 per parcel

# Privatization

- ◆ Quotes were provided for budgetary purposes only and are subject to change
  - Not intended for a la carte services (\*privatized recycling ~\$37 rate)
- ◆ Volatile markets for recycled goods can cause large swings in material handling prices
  - Many area recycling fees are higher\* than budgetary quotes received for this analysis.

<b>Racine Area Annual Recycling Rates</b>	
	Household Rates
Mukwonago	\$ 88.68
Salem Lakes	\$ 72.00
Bristol	\$ 66.00
Racine	\$ 64.24
Caledonia	\$ 63.00
Wind Point	\$ 51.00
Mount Pleasant	\$ 75.00
Average	\$ 68.56

# Decision Criteria

KEY CRITERIA and Weight Ranking		Option 1: Direct Haul	Option 2: Transfer Station		Option 3: Privatize	NOTES
			2.1 City Operated	2.2 Contract Operated		
Cost	<b>3</b>	6	3	12	9	based on operational costs from Appendix A
Financial Risk	<b>2</b>	2	4	6	8	low to high risk
Operational Impact	<b>3</b>	9	3	6	12	Based on City input
Timeline	<b>1</b>	1	2	2	1	1: implement 1/2023; 2: longer timeline
Impact on Users	<b>2</b>	2	2	6	8	low to high impact on users
Potential Regulatory Issues	<b>1</b>	2	3	3	1	low to high potential for regulatory issues
<b>Cumulative Weighted Ranking</b>		<b>22</b>	<b>17</b>	<b>35</b>	<b>39</b>	

# Decision Criteria – Bottom Line

KEY CRITERIA and Weight Ranking		Option 1: Direct Haul	Option 2: Transfer Station		Option 3: Privatize	NOTES
			2.1 City Operated	2.2 Contract Operated		
Cost	<b>3</b>	6	3	12	9	based on operational costs from Appendix A
Financial Risk	<b>2</b>	2	4	6	8	low to high risk
Operational Impact	<b>3</b>	9	3	6	12	Based on City input
Timeline	<b>1</b>	1	2	2	1	1: implement 1/2023; 2: longer timeline
Impact on Users	<b>2</b>	2	2	6	8	low to high impact on users
Potential Regulatory Issues	<b>1</b>	2	3	3	1	low to high potential for regulatory issues
<b>Cumulative Weighted Ranking</b>		<b>22</b>	<b>17</b>	<b>35</b>	<b>39</b>	

# Results

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Option 2.1 – City constructed and operated transfer station, was the most cost-effective option in the analysis and ranked the best in the cumulative decision criteria

- ◆ Requires capital cost of \$2.9M for transfer station, scale & equipment
  - PSA prepared for PS&E
  - Requires ~2+ acres of land
- ◆ NO change in services to residents
- ◆ Same curbside service
- ◆ Same “Pearl Street” services, now managed at the transfer station
- ◆ Net decrease for Recycling Fee, depending on sales of recyclables



# Implementation

- ◆ Site selection for Transfer Station
  - Real Estate, Relocation, Remediation → affect timeline
  - Permitting (WDNR)
- ◆ Funding
- ◆ Transfer Station design and construction (18 months)
  - Equipment lead times
  - Impact on winter operations
  - Gap Plan – operate in Option 1 until the transfer station is open (~\$70K additional operating costs per month)



# ◆ Questions???

- John Rooney, P.E.  
Commissioner of Public Works
- Ron Pritzlaff, P.E.  
Asst. Commissioner of Public Works
- Nathan Klett, P.E.  
Foth Infrastructure & Environment, LLC
- Andrea Lorenz, P.E.  
Foth Infrastructure & Environment, LLC



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City of Racine DPW